larger population? The answer seems negative because *Ribes* species are notably unpalatable to big game, and we saw no indication of significant browsing on the plants in this population in spite of heavy grazing by cattle in the area. Furthermore, numerous gulches we investigated are too steep for cattle and don't appear ever to have been grazed.

Although no disjunct woody plants in northern Idaho are known to be so very restricted in distribution, herbaceous species such as *Viola sempervirens* Greene and *Thelypteris nevadensis* (Baker) Clute have been reported recently as coastal disjuncts of very limited range in the northern Rockies (Johnson and Steele, Northw. Sci. 52:3. 1978).

We present the following hypothesis to account for the elevational restriction of this disjunct population. The winter of 1972–73 had low temperatures with virtually no snow cover. *Ceanothus velutinus* Dougl. and *C. sanguineus* Pursh were killed to the snow level throughout Idaho by these conditions. We discovered many dead *Ribes sanguineum* plants during the survey work. It is quite possible that the dead *Ribes* plants were winter-killed. If this is true, then the restriction to a small midslope area of a steep canyon may result from these factors interacting: 1) an average snow depth sufficient to cover shrub crowns during lowest temperatures determines the lower elevational limits; 2) restricted growing season determines the upper elevational limits; 3) steep slopes provide excellent air drainage, preventing cold air pooling; 4) the heat sink properties of the canyon moderate temperatures.

We believe this population of *Ribes sanguineum* to be a natural Pacific coastal relict. This first report for Idaho is an eastward extension from the east slopes of the Washington Cascades of ca. 300 km. Herbaria searched: BOIS, CIC, ID, IDF, IDGH, NY, ORE, OSC, UC, US, WS and WTU. Duplicates deposited at ID, WS and WTU. *Ribes sanguineum* has been placed on the Idaho State list of threatened plants (Vasc. Pl. Spp. of Concern, FWR Exp. Sta. Bul. #34, Moscow, ID, June 1981).—Frederic D. Johnson and Douglas S. Ardema, Forestry, Wildlife and Range Experiment Station, Univ. Idaho, Moscow 83843. Contribution No. 255. (Received 11 Dec 1981; revision accepted 20 Jun 1982.)

Distribution of *Polygala acanthoclada.*—*Polygala acanthoclada* is known from Utah, southwestern Colorado, northern Arizona, and southern Nevada, and has also been reported in California: Shadow Mountains (erroneous report based on a misidentified specimen) and New York Mountains of San Bernardino County; and Eagle Mountains of Riverside County.

We found a population of at least 300 plants in Lucerne Valley (San Bernardino County), 5 km east of Camp Rock Road along Old Woman Springs Road (S 20 T4N R2E), at an elevation of about 946 m. Our collection (*Sanders 2097*; 27 May 1981; UCR, RSA) documents a range extension of 225 km. The *Polygala* population is scattered on a flat sandy plain with individuals and small groups of plants interspersed within a creosote bush scrub matrix dominated by *Larrea tridentata, Ambrosia dumosa* and *Hilaria rigida.*

The Lucerne Valley habitat is very different from that reported elsewhere. The Eagle Mountain population occurs 0.5 km north of the Joshua Tree National Monument visitor center near Cottonwood Spring at an elevation of about 950 m. The *Polygala* population occurs on a gently rolling, sandy-gravelly, alluvial plain with individuals and small groups of plants interspersed within a mixed shrub vegetation, dominated by *Coleogyne ramosissima, Larrea tridentata, Tetracoccus hallii, Cassia armata,* and *Juniperus californica.*

The New York Mountain populations occur near Barnwell and in Keystone Canyon. Near Barnwell, at about 1500 m elevation, the topographic mosaic includes flat or gently tilted stony plains broken by ridges, washes, and their rocky slopes. The stony plains support a sparse "grassland" (5% cover) dominated by *Hilaria jamesii,* and sometimes *Gutierrezia microcephala.* The rocky slopes have less *Hilaria* and *Gutierrezia* but also include a sparse overstory (2% cover) of *Yucca brevifolia, Yucca baccata,* and *Juniperus osteosperma.* Plants of *P. acanthoclada* characteristically occur at the edges of the stony plains or along small washes and on rocky slopes.

In Keystone Canyon, *P. acanthoclada* occurs on steep, rocky slopes at an elevation of about 1708 m in a pinyon woodland about equally co-dominated by *Pinus monophylla, Juniperus osteosperma,* and *Quercus turbinella.* Plants of *P. acanthoclada* occur mostly in grassy openings among the trees and large shrubs.

In southern Nevada, *P. acanthoclada* is reported from Ash Meadows in Nye Co. (*J. C. and A. R. Roos 6144*), where it grows on alkali flats with *Chrysothamnus albidus* and *Atriplex confertifolia* at an elevation of 695 m.

Polygala habitats at Lucerne Valley, Cottonwood Spring, Barnwell, Keystone Canyon, and Ash Meadows are quite different from one another in terms of slope, substrate, vegetation density, and associated species. Consequently, knowledge of one habitat or locality does not help predict where other localities might be. Plants of *Polygala acanthoclada* are relatively few and inconspicuous. They are seldom collected, despite their highly accessible locations along well-traveled roads. Because of the apparent nonspecificity of its habitat, *Polygala acanthoclada* may yet be found in other Mojave Desert localities.—Frank C. Vasek and Andrew C. Sanders, Dept. of Botany and Plant Sciences, Univ. California, Riverside 92521. (Received 28 Dec 1981; revision accepted 6 Jul 1982.)

Jackrabbit Herbivory and Creosote Bush (*Larrea*) Reproduction.—Jackrabbits (*Lepus californicus*) evidently trim branches from the creosote bush, *Larrea tridentata* (D.C.) Cov. (Jaeger, J. Mammal. 19:187–188. 1948; Vorhies and Taylor, Univ. Arizona Agr. Exp. Sta. Techn. Bull. No. 49:471–587. 1933) but reports vary as to whether plant parts are actually ingested by the animals (Jaeger 1948; Hayden, J. Mammal. 47:42–46. 1966; Chew and Chew, Ecol. Monogr. 40:1–21. 1970).

Trimmed *Larrea* branches were observed lying at the bases of the shrubs during a recent study of Mojave Desert creosote bush (Boyd, M.S. thesis, Calif. State Polytechnic Univ., Pomona. 1979) near Barstow, California. Damage to the cut branches was detected only during flower production, when I observed that many of the flower buds had been eaten. This note reports my attempts to answer two questions regarding the observed browsing of *Larrea*: 1) Was *Lepus californicus* responsible for the damage? 2) Did the loss of reproductive units (flower buds, flowers, immature fruits) significantly decrease the reproductive output of creosote bush?

I established a 43 × 47.5 m quadrat within a relatively undisturbed *Larrea-Ambrosia* community (see Boyd 1979 for study site details). The pruned branches lying around each shrub were collected every 2–3 weeks from early April 1979 until mericarp dispersal began (late June 1979). I counted the number of cut pedicels and intact reproductive units on each branch. To determine whether the proportion of cut pedicels on the cut branches was different from that on unpruned branches, I removed one branch higher than 1.5 m above the ground from each of ten shrubs. The number of reproductive units was counted in the same way as with the pruned branches. Because the size of the animal pruning the branches is reflected in the heights of the cut branches, I measured the vertical distance from 773 freshly cut branches to the soil surface.